

PROJECT TITLE: Entomological Research
PROJECT NUMBER: 1101
PROJECT LEADER: D. L. Faustini
PERIOD COVERED: October, 1987

I. CIGARETTE BEETLE (CB) PHYSIOLOGICAL STUDIES

- A. Objective: To conduct research investigations designed to produce results that lead to the control of the CB growth and development.
- B. Results: A new method for the treatment of export cut filler that would control the CB has been developed. This method involves the use of ferrous oxide cachets which act as an oxygen absorber. Tests were performed using all life stages of the CB and 100% mortality was obtained after 10 days of observation. This process could be a substitute for the present phosphine treatments for export cut filler.

The warehouse that was treated with CO₂ in early September and then used to store off-shore tobaccos has shown increased numbers of CBs captured in the pheromone traps. This might be due to contaminated tobacco introduced after the CO₂ treatment. The domestic warehouse treated with CO₂ has showed an insignificant number of trapped CBs (1).

A proposal has been written to investigate the use of microbial pathogens that could be used to control the CB. Specifically, Bacillus thuringiensis var. tenebrionis a strain that is pathogenic to beetles (Coleoptera) (2).

- C. Plans: 1) A meeting has been scheduled for November 3 to address the application of ferrous oxide to export cut filler (3). This will include a cost/benefit review; governmental prospective; and a comparison to the present treatment (phosphine). 2) Eight additional tobacco warehouses will be treated with CO₂ in December. 3) A review will be made of the present Bacilli pathogens. 4) A proposal will be written regarding research to be done.

D. References:

1. Minor, M. F. Notebook No. 8539, pp. 14-20.
2. Ryan, L. Memo to D. Ayers, B. Davies, D. Faustini. Working Document to Discuss Bacilli as Potential CB Control Agents. October 2, 1987.
3. Faustini, D. L. Memo to Distribution. Treatment of Export Cut Filler and Other Polyethylene Packages of Tobacco. October 22, 1987.

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II. SERVICES TO OTHERS

- A. Objective: To conduct and provide technical services to areas outside R&D.
- B. Results: Recommendations were made to: QA regarding the optimum (most accurate) phosphine monitoring pumps (1); and, QA regarding atmospheric steaming cycle for improved stems (2).
- C. References:

1. Faustini, D. L. Memo to T. A. Newman. Standard Phosphine Monitoring Equipment. October 2, 1987.
2. Faustini, D. L. Memo to T. A. Newman. Atmospheric Steaming Cycle for Improved Stems. October 12, 1987.

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